REMARKS

Applicants submit these remarks in response to the Office Action dated November 17, 2004, herein referred to as "Office Action." The four-month date for filing a response is March 17, 2005. Therefore, Applicants believe that with the one-month petition for extension of time submitted herewith, this response is being timely filed. In the event that Applicants are incorrect in their assumption, please charge any additional fee to Deposit Account No. 23-2415.

Interview Summary

Applicants thank Examiner Mahatan and Supervisor Marschel for the courteous Telephonic Examiner Interview ("Interview") conducted on January 13, 2005. Applicants' representatives Tobey Tam and Samir Elamrani wish to express their appreciation for the helpful comments provided by the Examiners during the Interview.

A summary of the substance of the Interview is provided below.

In the Interview, the Examiner indicated that the Declaration under 1.132 by Dr. Agrafiotis submitted with the Amendment/Response dated August 4, 2004 has been reconsidered. The Examiner further indicated that the objection to the Declaration set forth on page 4 of the Office Action has been withdrawn and the 35 U.S.C. § 102(a) rejection based on Agrafiotis *et al.* (Nonlinear Mapping Networks, *J. Chem. Inf. Comput. Sci.* Nov.-Dec. 2000, Vol. 40, p. 1356-1362) has been overcome. Applicants note the withdrawal of the rejection with appreciation.

The Examiner indicated that the objection of claims 4, 16, 26 and 36 under 35 U.S.C. § 112, second paragraph as set forth in the second paragraph on page 3 of the Office Action has been reconsidered and withdrawn. Applicants' representatives suggested that the "stopping criteria" language in the claims as originally filed be restored at this juncture. The Examiner indicated that he will favorably consider claim amendments restoring the "stopping criteria" language recited in the original claims.

Regarding the rejection of claims 10, 11, 20, 21, 30 and 31 under 35 U.S.C. § 112, second paragraph for reciting the limitation "chemical fragments of reagents," the Examiner suggested that Applicants further clarify the phrases "chemical fragments of reagents" and how they relate to "building blocks".

Regarding the rejection of claims 1, 4, 16, 26, and 36 under 35 U.S.C. § 112, second paragraph for asserted indefiniteness of the language "distances ... representing relationships," the Examiner indicated that he is inclined to favorably consider a new independent claim based on present claim 1 which further recites a similarity/dissimilarity relationship. The Examiner would also consider Applicants comments clarifying the distance/relationship in pending claim 1.

Claim Amendments

Claims 1-33, and 36 are currently pending and claim 38 has been added. Claims 1, 14, 24, and 38 are independent. Claims 4, 16, 24, 26 and 36 are sought to be amended. Support for new claim 38 can be found throughout the specification and in originally filed claims 1 and 14. Claim 24 was amended in the Amendment/Response dated August 4, 2004, *see* page 7. This amendment inadvertently deleted the term "coordinate," as discussed with Examiner Mahatan in an Interview on November 4, 2004. Applicants now request entry of this correction.

The amendments sought to be made herein are intended to clarify the claimed invention, as discussed during the Interview. These changes are believed to introduce no new matter, and their entry is respectfully requested.

The Rejection of Claims 1-3, 5-9, 12, 14, 15, 17-19, 22, 24, 25, 27-29 and 32 Under 35 U.S.C. § 102(a)

Claims 1-3, 5-9, 12, 14, 15, 17-19, 22, 24, 25, 27-29 and 32 stand rejected under 35 U.S.C. § 102(a) as allegedly being anticipated by Agrafiotis *et al.* (Nonlinear Mapping Networks, *J. Chem. Inf. Comput. Sci.* Nov.-Dec. 2000, Vol. 40, p. 1356-1362). As discussed during the Interview and summarized above, the Examiner has indicated that the Declaration under 1.132 by Dr. Agrafiotis submitted with the Amendment/Response dated August 4, 2004 is sufficient and therefore the rejection is believed to be overcome. Applicants respectfully request indication of the withdrawal of the rejection in the next Office Action.

The Rejection of Claims 1, 4, 16, 26, and 36 Under 35 U.S.C. § 112, Second Paragraph

In the Office Action the Examiner requested additional clarification of the term "relationship." Specifically, the Examiner requested that clarification be provided as to how the term "relationship" relates to the recitation "wherein distances between the mapping coordinates represent relationships between the products" as set forth in present claim 1 and the recitation "determining a relationship between the two products" as set forth in claim 4.

Applicants respectfully submit that the meaning of the term "relationship" as recited in the claims can be ascertained by the skilled artisan based on the description of the present invention provided in the specification.

As described throughout the present specification, the invention relates generally to multidimensional scaling (MDS) methods and systems for projecting relationships between products in a space of dimensionality *m* to facilitate manipulation of a library containing a large number of products. For example, two products in a library are evaluated according to a number of selected properties shared in common between the two products. A relationship between the two products is determined based on the selected properties. The two products are then assigned coordinates in the *m*-dimensional space. The coordinates are then refined such that the distance between the two products is reflective of the relationship between the two products as determined based on the selected properties. The specification provides ample illustration on how to perform the projections. As noted in paragraph [0086] of the specification, while the illustrations are provided based on projections in a 2-dimensional space, the invention can also be used for mapping products into higher dimensions ($m > 2$) in order to facilitate their analysis by established statistical methods.

Employing properties to determine relationships between products in a library is illustrated for example in paragraph [0054] of the specification where Applicants provide the following description:

> In an embodiment, relationships between products in the training subset of products are obtained by obtaining a set of properties for each product in the training subset of products, and computing relationships between products using the properties of the training subset of products. As will be understood by persons skilled in the relevant art, any relationship measure that can relate products in the training subset of products can be used in this regard. In an embodiment,

> relationships between products represent similarities or dissimilarities between the products.

The specification in paragraphs [0069] to [0070] for example provides an illustration on how the "relationships" are used to refine coordinates of the products and the resulting distances between pairs of products. Specifically this section illustrates the procedure for determining a coordinate y_i by:

> (1) placing the training subset of products on an *m*-dimensional map at some initial coordinates; (2) selecting a pair of products from the training subset of products having a known or assigned relationship; (3) revising the mapping coordinates of one or both of the selected products based on their assigned relationship and the corresponding distance between the products on the map so that the distance between the products on the *m*-dimensional map are more representative of the assigned relationship between the products; and (4) repeating steps (2) and (3) for additional pairs of products from the training subset of products until a stop criterion is satisfied.

One type of "relationships" cited in the specification is an illustration of the claimed invention is similarity/dissimilarity relationships. The specification describes how the similarity/dissimilarity properties are employed in determining relationships between products in the library and how the relationships are in turn used to refine the coordinates of the products in a projection *m*-dimensional space. For example, this is illustrated in paragraph [0078] which states:

> [i]n this section, two exemplary applications of the present invention are presented. Both of these applications illustrate the generation of 2-dimensional mapping coordinates for the products of a combinatorial library given a set of computed descriptors (properties) of the library products and a molecular similarity function evaluated on the basis of these descriptors. The objective was to map the products in the combinatorial library onto a 2-dimensional map in such a way that the Euclidean distances of the products on the 2-dimensional map approximated as closely as possible the corresponding dissimilarities of the respective products. Thus, the computed dissimilarities of the products were used as a measure of the relationships between the products.

Accordingly, those of skill in the art will have no difficulty determining the meaning of the term "relationships" as used in the present invention. Thus withdrawal of the objection to the term "relationships" is respectfully requested.

The Rejection of Claims 4, 16, 26 and 36 under 35 U.S.C. § 112, Second Paragraph

Claims 4, 16, 26, and 36 are objected to for the reasons set forth on the second paragraph on page 3 of the Office Action. Applicants note with appreciation indication during the Interview that the Examiner is favorably inclined to withdraw the objection. In addition as discussed during the Interview, Applicants wish to amend these claims to restore the "stopping criteria" language recited in the claims as originally filed. The Examiner's indication that entry of the amendments will be favorably considered is appreciated.

These claims are amended to restore the original phrase "until a stop criterion is obtained" into claims 4, 16, and 26, and the original phrase "until the distances between the products on the *m*-dimensional nonlinear map are representative of the similarity relationship between the products" into claim 36 as discussed with the Examiner. With these amendments, Applicants seek a favorable reconsideration and withdrawal of this rejection.

The Rejection of Claims 10, 11, 20, 21, 30 and 31 under 35 U.S.C. § 112, Second Paragraph

Claims 10, 11, 20, 21, 30 and 31 stand rejected as being vague and indefinite for the recitation of the phrase "fragment of reagents." Office Action at p. 3. During the Interview the Examiner requested further clarification with regards to the interpretation of the term "fragment" and how it relates to the term "building blocks."

The chemical fragments of reagents of pending claims 10, 11, 20, 21, 30 and 31 are directed to structural fragments. As such, an example of building blocks can be analogous to amino acids that make up a polypeptide as described in the specification at pp. 4-5 ¶ 9. Hence, chemical fragments of reagents within this illustrative example could be structural fragments of the amino acids. Support for these terms may be found throughout the specification. For example, construction of a building block from chemical fragments of reagents can be found at p. 8 ¶ 8, "[i]n accordance with the invention, features of building blocks represent reagents used to construct the combinatorial library, fragments of reagents used to construct the combinatorial library, and/or modified fragments of reagents used to construct the combinatorial library." Accordingly, it is respectfully submitted that the meaning of "chemical fragment of reagent" *i.e.* a structural portion of a reagent is clear when read in light of the specification. Thus withdrawal of this rejection is respectfully requested.

For reasons discussed above and during the interview, Applicants respectfully request withdrawal of these rejections under 35 U.S.C. § 112, second paragraph.

CONCLUSION

Applicants believe that for the reasons set forth above, claims 1-33, 36 and 38 are in condition for allowance and respectfully request prompt and favorable action.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (858) 350-2319.

Respectfully submitted,

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Dated March 17, 2005

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